Guidelines For Planning and Managing the Major Research Equipment and Facilities Construction Account

A. Introduction and Eligibility

As described in NSF's Strategic Plan, NSF investments provide state-of-the art tools for research and education, such as: scientific instrumentation and equipment; shared-use research platforms and multi-user facilities; investments in Internet-based and distributed user facilities; advanced computing resources; and network test-beds, digital libraries, and large databases. NSF investments in tools for research and education are intended to enable discovery at the frontiers of science and engineering and concurrently enhance the productivity, effectiveness, and continual renewal of the science and engineering workforce. A subset of the NSF investment in tools is funded through the Major Research Equipment and Facilities Construction (MREFC) Account.

1. Definition

The MREFC Account is an agency-wide capital asset account. It provides funding for the establishment of major science and engineering infrastructure , with costs ranging from several tens to hundreds of millions of dollars. Infrastructure is defined in Webster's dictionary as "the basic facilities and equipment needed for the performance of a particular function." In the MREFC context, "infrastructure" is used interchangeably with "tools." NSF established this budget account in FY 1995 to promote effective planning and management for the support of such sizable investments made over a limited period of time. Specifically, the Account was intended to:

- Provide a revolving account to fund construction and acquisition of major infrastructure projects;
- Avoid large distortions in the funding "base" of directorates/offices;
- Ensure resources to complete projects that are funded over several years; and
- Distinguish the slow outlays for construction projects.

The MREFC Account supports state-of-the-art tools that are centralized in nature, integrated systems of leading-edge instruments, and/or distributed nodes of information that serve as shared-use networked infrastructure in advancing one or more fields of scientific study. Examples include accelerators, telescopes, research vessels, aircraft, earthquake simulators, networked high-tech research platforms, advanced computing resources, digital libraries, and large databases. To qualify for MREFC investment, networked infrastructure must exhibit systems characteristics greater than inferred simply by the connectivity of its parts.

2. Eligibility

To be eligible for consideration for MREFC funding, a project should:

- Represent an exceptional opportunity that enables research and education essential to the Nation's science and engineering enterprise, with a broad base of support in the relevant community or communities;

- Be consistent with the goals, strategies and priorities of the NSF Strategic Plan;

- Establish a long-term tools capability that is accessible to an appropriately broad community of users on the basis of merit;

- Require large investments, over a limited period of time, such that the project cannot be supported within one or more Directorate(s)/Office(s) without severe distortion to its portfolio of activities. (Hereafter referred to as the Originating Organization(s).) The total cost (construction and/or acquisition) of a project proposed for the MREFC Account should represent an investment greater than ten percent of the Originating Organization(s)' current plan, adjusted to exclude activities that cannot be reasonably expected to contribute to or benefit from the development of Major Research Equipment and Facilities Construction (such as the SBIR program or OPP operational funds);

- Ensure that the awardee provides a strong project management structure that is appropriate to the size and complexity of the project, including clear lines of communication and authority;

- Have undergone a thorough external review, including high-level assessment of:

    - scientific and engineering research merit;

    - broader impacts (e.g., integrating research and education);

    - technical and engineering feasibility;

    - opportunities for interagency and/or international collaboration and cost sharing;

    - relevant management issues and accuracy of cost, schedule and contingency estimates, including projected operating costs; and

        - Be of sufficient importance that the Originating Organization(s) is prepared to fully fund the costs of operation and maintenance and associated programmatic activities. With the specific approval of the MREFC Panel, R&D that is essential to the construction/acquisition effort, if fully justified, can be included in the MREFC account. Other planning,

project design and R&D efforts are the responsibility of the Originating Organization(s) and should be funded from the R&RA Account.

3. NSF Organizations and Responsibilities

A number of NSF organizations are involved throughout the conception, development and implementation of an MREFC Project. These organizations and their primary responsibilities are:

a. Originating Organization(s). Directorates or Program Offices, either individually or jointly, may propose an MREFC project. Their responsibilities include coordination of planning; serving as the interface with relevant scientific communities; providing cost-sharing of construction; preparing all required documentation for project consideration and approval; conducting merit review of proposals; fully funding costs of operations, maintenance and relevant programmatic activities; and managing the project.

b. Major Research Equipment and Facilities Construction Panel. The Panel consists of the Chief Operating Officer (Chair), the Assistant Directors, Program Office Heads, and the Chief Financial Officer. It provides governance of the overall MREFC process; review of specific cases as presented by the Originating Organization(s); advice to the Director concerning readiness for inclusion in the budget request or construction/implementation start; and advice to the Director on appropriate procedures for considering projects for the MREFC Account. The MREFC Panel Chair, at his/her discretion, may appoint an Executive Secretary to assist with the operations of the Panel.

c. Technical Review Team. The MREFC Panel Chair, at his/her discretion, may designate a team of NSF staff familiar with the technical and management issues associated with various types of major infrastructure projects to prepare an analysis of all proposed projects for consideration by the MREFC Panel.

B. MREFC Account Review Process

Procedures for submitting and reviewing projects for MREFC Panel consideration are described below.

1. Initial Discussion of Potential Future Projects

MREFC projects may take several years or more to mature in concept and planning before they are considered for funding. Such projects, which emanate from the science and engineering community, will be developed by the Originating Organization(s) with significant community participation. These projects must be brought to the attention of senior NSF management and the NSB at an early stage of concept development. This notification is considered informal and does not require the approval necessary for fully developed proposals. This approach facilitates the long-range, incisive planning necessary in the development of the NSF infrastructure portfolio and its management. As part of infrastructure planning, the MREFC Panel will maintain a running list of

these potential projects (with approximately a five-year planning horizon). Projects are included on the list when the Originating Organization(s) prepares, at the request of the Chief Operating Officer, a brief description summarizing the:

- Nature of and need for the project; (There must be a clear, crisp statement of the intellectual raison d'être for the project. What questions will it answer? How significant will the improved knowledge be over what we know now?)
- Justification for MREFC funding;
- Strategic intent and connections to NSF goals;
- Responsibilities of and impact on Originating Organization(s);
- Description of user community and how it will access this infrastructure;
- Preliminary cost, schedule and contingency estimates; (This should include estimated operating costs of the infrastructure project. R&D funds previously spent by the Originating Organization(s) should also be identified.)
- Status and timeframe of planning;
- Partnerships envisioned;
- Expected outcomes and impacts; and
- Plans for internal and external project management.

The running list is updated twice a year: in preparation for the briefing to the National Science Board (NSB) on the status of such projects (November) and as part of the internal NSF comprehensive MREFC review (March) undertaken in preparation for the NSB MREFC planning discussion in May. At the November NSB meeting, the Originating Organization(s) and/or the Chief Operating Officer will brief the NSB about the plans and status of potential infrastructure projects, calling attention to anticipated scientific, technical, management, and risk issues. The annual briefing will be arranged through the MREFC Panel prior to the November NSB meeting. (See Exhibit XIII-2 for the MREFC Timeline.)

2. Project Approval for Inclusion in Budget Request

As planning progresses beyond the preliminary stages, greater detail must be developed regarding scientific, technical, and management issues, including not only capital investment considerations but also information/communication needs and human interface requirements. The justification for use of MREFC funds and the commitment of the Originating Organization(s) should be clearly articulated. Prior to inclusion in the

budget request, the proposed project is considered by the MREFC Panel, the Director, and the National Science Board for approval.

a. MREFC Panel

When an Originating Organization(s) believes planning is sufficiently advanced for a project to be considered for inclusion in the upcoming NSF budget request, and priority within the organization(s) is sufficiently high to merit its investment, the project may be brought to the MREFC Panel for consideration. A succinct paper (6-8 pages) should be submitted to the MREFC Panel addressing the topics listed below. Supporting documentation and other material may be included in appendices. The purpose of this document is to ensure that the principal opportunities have been identified, potential concerns addressed, and a valid life-cycle cost and schedule for the project has been developed. The following topics should be covered:

- Project Definition. There must be a clear project description that specifies the intellectual scope of the project and the technical and scientific milestones to be achieved upon completion. This is the baseline project definition. Having such a baseline description, along with the associated schedules and cost profiles, is essential to measuring progress and addressing other issues of sound project management.

- Intellectual Justification. A compelling indication that the project is an exceptional opportunity that enables research and education essential to the Nation's science and engineering progress. Articulation of the need for the project, in the context of other existing or planned infrastructure in the field, and opportunities that would be foregone by not undertaking the project, and its effect on the balance and concentration of research within the field. For integrated distributed systems that serve as shared-use infrastructure (for example, the Network for Earthquake Engineering Simulation) a clear explanation of the following issues must be provided:

    - the significant new capability(ies) that will be created by the integration of the distributed components into a working whole;

    - an indication of why the components must be integrated to achieve this new capability;

    - the advanced technologies that will be developed/used to achieve this integration; and

    - how the envisioned management structure will ensure the development of an integrated system that will be greater than the sum of its parts.

- Connection to NSF's Strategic Plan, Goals, and Priorities. Indication of manner in which the project will support NSF goals and priorities, including education and training.

- Broad-Based Community Support. Evidence that the project has been vetted with and has the broad-based support of the relevant science and engineering communities.

- Scale And Usage. Rationale for the level of scale proposed for the project, including estimated number of annual users and size and fraction of research and education community that will be served.

- Life Span. The estimated useful life span, including potential plans for future upgrades of the proposed project, with cost estimates.

- Life-Cycle Cost Profile. An independently confirmed estimate, performed by external experts reporting to NSF, of life-cycle costs including:

    - R&D and project design costs;

    - construction/acquisition;

    - operations, maintenance, and planned upgrades; and

    - research support or support for programmatic activities, assuming full utilization.

A plan should be provided for incorporating into the ongoing budget any costs for which the Originating Organization(s) is/are responsible, including a profile of out-year projections and an analysis of the impact of costs on other activities supported by the Originating Organization(s). The funding profile should indicate estimated annual costs with and without inflation, using the current OMB inflation factors.

- Budgetary Impact. A description of the budgetary impact if the construction/acquisition costs of a project were to be supported by funds solely from the Originating Organization(s), including an explanation of other alternative funding mechanisms explored.

- Feasibility. An assessment of the technical and engineering feasibility of bringing the project to fruition, including identification of technical, management and financial risks and plans for dealing with these eventualities (i.e., management and contingency plans). The Originating Organization's plans for contingency funds should also be explained.

- Partnerships. If partnerships are contemplated, a time-phased plan to share the cost of acquisition/construction and operation with potential partners (e.g.,

intra-agency, inter-agency, international, non-profit, and private sector partners) and a plan to coordinate construction/acquisition and/or usage with other contributing partners. The rationale for the partnership, including costs, benefits, risks and the level of collaboration and cost sharing should be made clear. Before the project is initiated, a Memorandum of Understanding (MOU) or similar formal agreement should be in place, delineating all aspects of the project and terms of the partnership.

To the extent that MREFC projects involve contributions from other funding partners, careful attention should be given to cash management issues involved, such as (a) timing of contributions and their effect on cash flow; (b) non-payment of contributions - including partner default; and (c) advance contributions.

- Project Management. An early synopsis of the detailed Project Management Plan (see Exhibit XIII-1) that will be prepared later in the MREFC planning process. It includes:

  - Plans, schedules and milestones for implementing and managing the project (both internal and external), including competition or procurement/acquisition and a schedule for periodic and substantive project oversight reviews.

  - Schedules for reviews that would provide the basis for renewal, recompetition or phasing out of NSF Directorate(s) or Office support of operating costs.

  - A plan for meeting the Administration and Management requirements and expertise for operational oversight within the Originating Organization(s) during the life-cycle of the project. Any additional needs should be noted.

When a Directorate/Office proposes more than one MREFC candidate project for consideration by the MREFC Panel within a two-year time frame, it should prioritize its slate of projects and provide a rationale for its recommendations to the Director. Based on its review of the information provided, the MREFC Panel provides recommendations to the Director on candidate projects as to their eligibility, importance, and readiness. "Readiness" shall be viewed as the ability of the project to be ready for inclusion in the forthcoming budget request. The Panel also advises the Director of any staffing or S&E issues associated with the possible implementation of the candidate projects.

b. Director

Informed by the recommendations from the MREFC Panel, the Director selects MREFC projects for inclusion in a budget request, using the following criteria:

- Strength and substance of the information provided to the MREFC Panel;

- Relationship to NSF goals and priorities, including NSF's education mission;

- Appropriate balance among various fields, disciplines and directorates, based upon a consideration of needs and opportunities.

- Guidance from the NSB on overall decision boundaries for the MREFC Account, provided at the annual MREFC planning discussion (May); and

- Opportunities to leverage NSF funds.

c. National Science Board

Projects selected by the Director are brought forward to the NSB for Project Approval to determine that projects are ready to be considered for funding in a future budget request. Project Approval for inclusion in a future budget request does not imply NSB approval to implement the project, nor does it mean the project will be included in the forthcoming budget request. Rather, it indicates the Board's willingness to move ahead, given appropriate budget levels.

The Originating Organization(s) is responsible for preparing the documentation needed for the NSB to review and approve a proposed MREFC project for inclusion in a future budget request. In addition to the NSF Form 10 (for clearance) and the Assistant Director/Office Head endorsement(s), items (1) and (2), described below, must be prepared:

(1) Director's Memorandum to Members of the NSB: briefly summarizing the project, the need for the project, and cost estimate. The Director's Memorandum should include the following statement:

"With the Board's concurrence that this project is meritorious and that its planning is sufficiently advanced, the Director will take appropriate action in preparation of a budget request. Board approval of this project for planning purposes does not imply NSB approval of project implementation. Any such approval will be requested from the NSB at the appropriate time."

The Director's Memorandum should conclude with the following resolution:

"RESOLVED, that the National Science Board concurs that planning for the <project title> is sufficiently advanced, and the intellectual value of the project sufficiently well demonstrated, to justify consideration by the Director and the Board for funding in the FY 20XX or a future NSF budget request."

(2) Project Report. The Project Report (usually 6-8 pages) should provide an update of the documentation provided to the MREFC Panel.

The Director's Memorandum and the Project Report should be clearly labeled "Pre-decisional - Do Not Distribute."

d. Capital Asset Requirement

For MREFC projects that are included in a budget request to OMB, a Capital Asset Plan and Justification [see OMB Circular A-11, Part 3: "Planning, Budgeting, and Acquisitions of Capital Assets" and its supplement "Capital Programming Guide" (July 1997)] must be prepared providing: (1) Summary of spending for project stages; (2) Justification and information on program management and acquisition strategy; and (3) Cost, schedule, and performance goals and milestones. The Plan must be submitted with the Foundation's budget request, using the format developed with OMB. The required information should be easily drawn from the documentation developed during the planning process. (Sample plans are available from the Budget Division in BFA.)

3. Approval for Project Implementation

Following budget approval of the project, the Originating Organization(s) will provide regular updates on the MREFC project status to the MREFC Panel on a mutually agreed upon schedule. In addition, the following items will be prepared:

a. Budget Schedule for Anticipated Operating Costs

As MREFC projects move through the budget process -- from the OMB budget request, to the Congressional request, to appropriation approval -- Originating Organization(s) should formalize a schedule to build to the level of anticipated operating costs by the final year of construction/acquisition. The MREFC appropriation account was established to provide funding for the establishment (construction and/or acquisition) of major science and engineering infrastructure projects. Other activities, including research and operations costs, should normally be covered under the R&RA and/or EHR appropriations accounts. When funds from these separate appropriations are obligated under a single award, there should be included provisions that specify the appropriations account under which the expenditures are to be charged and restrict any reprogramming of such funds by the awardee.

b. Project Management Plan

Before proceeding with a MREFC project as a result of a proposal or prior to a call for proposals (Program Solicitation or RFP), a Project Management Plan must be prepared by the Originating Organization(s) and reviewed by the MREFC Panel. (See Exhibit XIII-1 for required components of the Project Management Plan).

c. National Science Board Action

Project Implementation Approval by the NSB should be sought when the Originating Organization(s) has completed project planning. Funding should be available or anticipated with reasonable certainty. The MREFC Panel will advise the Director about the readiness of projects for implementation approval.

d. Preparation and Documentation for Proposed Project Implementation Approval

The policies and procedures in this Manual (the PAM) apply to MREFC projects. For projects to be conducted through a contract, rather than a cooperative agreement, consult the Division of Acquisition and Cost Support. PAM covers the award process from proposal generation through merit review, DRB, NSB, and the final award. In particular, Originating Organizations should consult Chapter VI.H: "NSB and DRB Review and Approval" for general guidance on items to be submitted to NSB for approval. In addition to the general guidance in PAM, there are unique details that apply to MREFC project implementation approval:

- The Memorandum for NSB Action (PAM VI.H.3.b)

The Director's memorandum to the NSB should summarize information and issues related to the proposed implementation of the project, potential policy issues/implications, precedents involved, prior NSB discussion, and any other factors that could be considered non-routine.

It should normally contain a brief science/engineering overview; a description of connections to any national and international programs; a description of the project; a summary of the review process and a short statement of response to any major concerns raised by reviewers; a schedule; budget totals including consideration of contingencies; the impact that technological advances would have on the project during construction; the percentage of program or division budgets that the proposed award represents and out-year implications; and a description of plans for project management.

The Memorandum should also include a statement regarding plans for the end of the award period, consistent with the policies set forth in NSB-97-216, "NSB Statement on Competition and Renewal of NSF Awards" and the accompanying Resolution passed by the NSB at its meeting of November 13, 1997. The Memorandum should conclude with the following resolution:

"RESOLVED, that the National Science Board authorizes the Director at his/her discretion to make an award for implementation of <Title> to <Institution or Entity> in an amount not to exceed $XXX,XXX,XXX for XX months."

The resolution should be modified if there are any special conditions (e.g. "pending congressional approval" or "pending the availability of funds.")

- Project Management Plan

In addition to the other required materials (described in PAM VI.H.3.b), MREFC project implementation approvals must include a Project Management Plan, as detailed in Exhibit XIII-1.)

e. Other References

Other documentation that may be relevant to preparation of MREFC projects is included in Exhibit XIII-3.

C. Project Management and Oversight

NSF does not normally operate infrastructure projects and facilities. Typically, the Foundation makes awards to external entities, primarily to universities and organizations representing the academic community, to undertake construction, management and operation of such projects. Although management and operation are often delegated to external partners, responsibility for proper stewardship of federal funds rests with NSF. Hence, once the awards are made, NSF staff members are responsible for overseeing the project management process.

First and foremost, NSF shall ensure that one of the awardees responsible for managing an MREFC project has the capability and resources necessary to take responsibility for the overall management and successful performance of the project. Before the project is implemented, a strong awardee project management structure, with clear lines of communication and authority, must be established. The awardee shall designate one person - with strong management experience - to be the Project Manager, with overall control and responsibility for the project. Foundation-wide guidance and procedures for the management of large infrastructure projects are currently being developed. These guidelines will give added emphasis to project management and oversight. This approach is intended to ensure that all large infrastructure projects are guided by a common set of principles. When the guidelines are published, they will apply to MREFC projects as well as other large projects.

Exhibit XIII-1

Project Management Plan

Before proceeding with the implementation of a MREFC project, a Project Management Plan must be prepared by the Originating Organization(s) and approved by the MREFC Panel. This protocol will hold all proposed MREFC activities to a high standard of management planning and oversight, as well as accountability.

The Project Management Plan must cover all phases of the MREFC project including the planning process, construction or acquisition, integration and test, commissioning, and maintenance and operations. At a minimum, it should include the following elements:

Activity Description

The activity description provides a brief synopsis of the project, the nature of the proposed award, the budget, the schedule with key milestones, and plans for initial operations. It also provides a synopsis of the portfolio and location of major tools/instruments (supported by NSF, other agencies and other sources, both private and foreign) that are already available to the discipline or community or likely to become available within the anticipated time frame of the proposed project.

There must be a clear, concise statement of what the project consists of, what is included in the total package, what is new, what may already exist, how the parts connect. This is the baseline project definition. Establishment of a clear project baseline is critical for measuring cost and schedule performance as well as scientific and technical accomplishment. In order to avoid confusion, it may be necessary to state what the project does and does not include.

Project Management Plan

This plan should expand upon the elements contained in the 6-8 page Project Report (provided earlier in the process to the MREFC Panel). In addition to the elements covered previously, it will address such issues as: organizational structure (i.e. project manager, lines of authority and reporting arrangements), requirements definition, systems engineering, work breakdown structure, schedule, budget, cost certifications or cost reviews, interface definitions, configuration control, risk management, contracting plans, contingency management , project reviews, integration and test planning, operations planning. Additional guidance on these issues will be provided in Foundation-wide guidance and procedures for the management of large infrastructure projects that are currently being developed. Whenever possible, contingency estimates should be based on the experiences gained by others who have built similar projects. Contingency funds should be carefully tracked as the project progresses and should only be used after a high level review of the need. No part of a project should be allowed to "own contingency." Contingency funds should be used only as a safety valve in case of genuine unforeseen circumstances.

All MREFC projects with a duration greater than three years are encouraged to review costs and schedule at the midway point of the project to see if adjustments are necessary for changing conditions -- economic (e.g. fuel or labor costs), environmental (e.g. weather) or technical (e.g. unforeseen advances in technology). The MREFC Panel must review and concur with such any revisions to the baseline costs and schedule.

Internal Management Plan

The NSF Internal Management Plan will delineate the responsibilities, authority and resources of NSF as opposed to those of the awardee and its project team. The NSF Internal Management Plan must include the following elements:

1) The proposed award budget of the activity. This assessment should specify the sources of all of the NSF funds, including a plan for sharing the costs between the relevant directorates and the MREFC Account, including verification that the resources are available for and would be dedicated to the proposed activity.

2) The internal budget (cost of staff travel, review panels, site visits, oversight bodies, etc.), including verification that the resources are available for and would be dedicated to the proposed activity. Adequate NSF internal resources shall be dedicated to the management and oversight of an infrastructure project being conducted by an awardee. Adequate resources include sufficient staff from program offices as well as sufficient staff from other offices. Adequate resources also include sufficient travel funds to allow project monitoring and oversight by staff of all offices responsible for the management and oversight of the project.

3) The NSF staffing needs of the activity, including verification that these resources are available for and would be dedicated to the proposed activity.

4) A plan providing clear lines of authority and communication for managing the project within NSF. An NSF Program Manager (may be part-time or full-time, depending on the needs of the project), knowledgeable in the substance of the project, and preferably with knowledge and experience in managing large, complex projects, should be designated and should be responsible for the project.

5) In most cases, the Originating Organization(s), with concurrence of the MREFC Panel, will designate a Project Advisory Team to advise and assist it in the planning, review and management of the MREFC project. This team should be advisory to the Program Manager and also serve as the interface between the Program Manager and other units of the Foundation.

6) In the case of projects carried out in partnership with other agencies/entities, the Internal Management Plan must carefully delineate the interfaces, responsibilities, and any particular sensitivity that may bear on the execution of the project.

7) A detailed schedule for construction/acquisition, management, maintenance and operation, including a schedule of reviews that provide the basis for periodic oversight,

renewal, recompetition, or phasing out the project. It is suggested that an advisory team with program, administrative and financial expertise visit awardees early in the award process, and then on a regular basis. Together with the awardee, the team would conduct a review of the business and administrative systems that the awardee has in place to administer the award. Any issues or weaknesses would be identified and addressed early.

8) A set of clear policies, procedures, criteria and milestones that guide the review process.

9) Description of how to assess the impact of the MREFC project and how to measure progress toward the activity's goals. It should include appropriate performance measures as well as any relevant NSF-wide measurements called for in the GPRA Performance Plan, such as those for construction and operations.

Exhibit XIII-2

Timeline for Planning and Budgeting for Major Research Equipment and Facilities Construction Account Items

The following timeline identifies the sequence for planning and budgeting for Major Research Equipment and Facilities Construction Account items. It provides for semi-annual discussions with the NSB (November, May) and takes into account the comprehensive review of NSF's MREFC portfolio (March)and planning session (May).

- *November/December – Comprehensive MREFC Panel review of ongoing projects.* NSF senior management, through the MREFC Panel, will review projects currently underway. This meeting will focus exclusively on the management processes, outstanding or upcoming management issues, the status of construction, and expectations for project completion on the original funding level and schedule.

- *November/December - Update for NSB/CPP on status of MREFC projects.* Staff will describe the impact of current fiscal year appropriations on the MREFC Account, including on MREFC projects included in the budget request for the coming year.

- *March - MREFC Panel planning session.* The MREFC Panel will examine the MREFC portfolio, including out-year commitments. Staff will propose candidates for inclusion in the subsequent year's budget request and provide updates/revisions to potential future projects. The Panel will also review the MREFC Guidelines for possible revision.

- *May - NSB MREFC planning discussion.* Staff will summarize for the NSB the comprehensive planning undertaken in March. The NSB will assess MREFC project commitments and, informed by information provided about candidates for the upcoming budget cycle, suggest decision boundaries for portfolio planning. A summary list of potential future projects will also be provided.

- *May – MREFC Panel comprehensive review of projects proposed for upcoming budget request cycle.* The MREFC Panel will assess projects proposed for the MREFC Account and will provide recommendations to the Director – grouped as ready, not ready, or not appropriate.

- *June/July/August – NSF/NSB decisions on which projects are ready to go forward* (i.e. be included in a future budget request.) Informed by the MREFC Panel review, the Director will identify projects for inclusion in the next budget request, and will discuss plans with the NSB as part of the budget development process. The NSB will consider MREFC projects deemed ready for approval to be included in a future budget request.

- *August - NSB action on budget request to OMB.* The NSB will approve total funding for the MREFC Account.

- *September – November.* Discussions with OMB and pass-back

- *February - Budget request to Congress*. Director will include MREFC projects from those approved by NSB, as funding from OMB passback allows.

Exhibit XIII-3

Other Documentation that May Be Relevant to Preparation of MREFC Projects

For procurements: *Federal Acquisition Regulations*. Staff should consult with the Contracts Branch of the Division of Acquisition and Cost Support when considering issuing a Request for Proposals (RFP). Note that National Science Board approval is required for all programmatic RFPs that will result in contracts that meet the NSB review threshold.

For action or information items that require National Science Board review and/or approval:

- *Director's Review Board Procedures (O/D 97-07; June 10, 1997)*: O/D 97-07 sets forth the function of the Director's Review Board (DRB) and establishes procedures to be followed for items requiring DRB review. As part of its responsibilities, the DRB reviews actions and information items prepared for the National Science Board (NSB) and items to be considered for delegation of authority by the Director.

- *Proposal and Award Manual, Chapter VI.H, NSB and DRB Review and Approval*: This section of the PAM sets forth the policy and procedures governing the preparation and review of action and information items for the National Science Board and the DRB.

For construction of a capital asset: *OMB Circular A-11, Part 3*: "Planning, Budgeting, and Acquisitions of Capital Assets" and its supplement "Capital Programming Guide" (July 1997).

For program design: *Activity Design, Review and Management Protocol (O/D 93-02; January 5, 1993)*. This design and review protocol covers newly proposed funding activities and applies to any proposed programmatic activity that has budget or management impact. It is designed to apply more generically to the initiation of new programmatic research thrusts, especially those new "programs" that require National Science Board review and approval.

For Environmental Assessment (EA) or Environmental Impact Statement (EIS): *Proposal and Award Manual, Chapter VII.E, Environmental Considerations*. This section of the PAM describes the policy and procedures applicable to NSF actions requiring the preparation of an Environmental Impact Statement in accordance with the National Environmental Policy Act (NEPA).